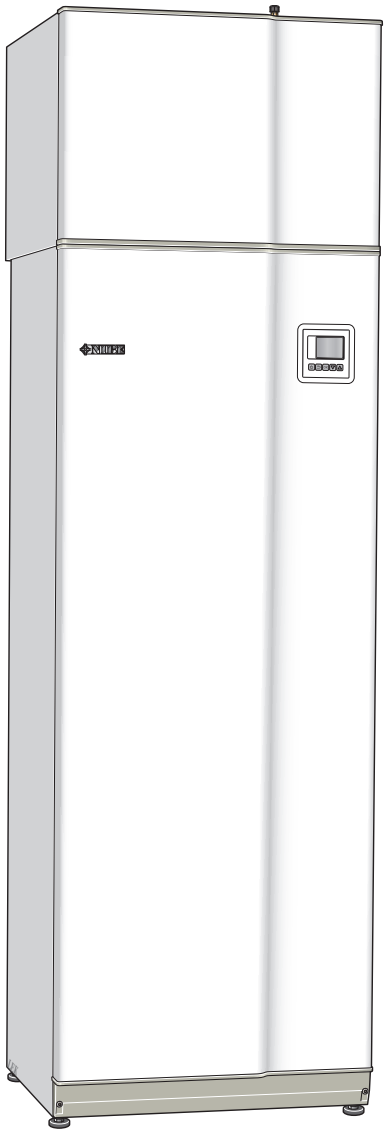
Installation manual

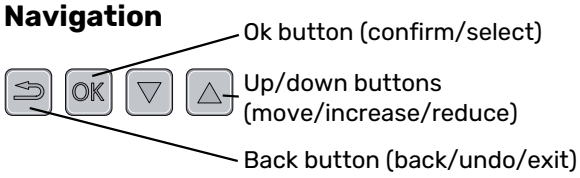
Hot water heat pump
NIBE F110



IHB EN 2344-1
731934

Quick guide

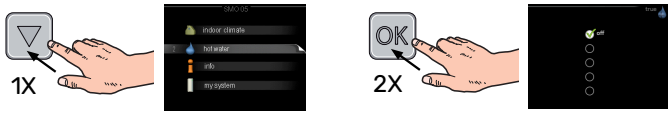
Navigation



A detailed explanation of the button functions can be found on page 23.

How to scroll through menus and make different settings is described on page 24.

Increase hot water volume



To temporarily increase the amount of hot water, first press the down button to mark menu 2 (water droplet) and then press the OK button twice. Read more about the settings on page 26.

In event of disturbances in comfort

If a disturbance in comfort of any type occurs there are some measures that can be taken before you need to contact your installer. See page 33 for instructions.

Table of Contents

Important information

Safety information

This manual describes installation and service procedures for implementation by specialists.

The manual must be left with the customer.

For the latest version of the product's documentation, see nibe.eu.

This appliance can be used by children aged from 8 years and above and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning use of the appliance in a safe way and understand the hazards involved. Children shall not play with the appliance. Cleaning and user maintenance shall not be made by children without supervision.

This is an original manual. It may not be translated without the approval of NIBE.

Rights to make any design or technical modifications are reserved.

Do not start F110 if there is a risk that the water in the system has frozen.

Water may drip from the safety valve's overflow pipe. The overflow pipe must be routed to a suitable drain, to prevent hot water splashes from causing harm. The overflow pipe must be inclined along its entire length to prevent pockets where water can accumulate, and must be frost-proof. The overflow pipe must be at least the same size as the safety valve. The overflow pipe must be visible and its mouth must be open and not placed close to electrical components.

The safety valve must be actuated regularly to remove dirt and to check that it is not blocked.

Electrical installation and wiring must be carried out in accordance with national provisions.

If the supply cable is damaged, only NIBE, its service representative or similar authorised person may replace it to prevent any danger and damage.

Symbols

Explanation of symbols that may be present in this manual.

NOTE

This symbol indicates danger to person or machine.

Caution

This symbol indicates important information about what you should consider when installing or servicing the installation.

TIP

This symbol indicates tips on how to facilitate using the product.

Marking

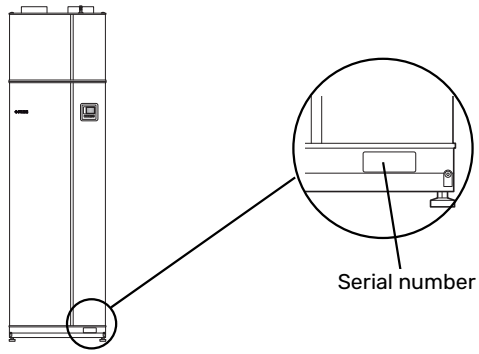
Explanation of symbols that may be present on the product's label(s).

Read the User Manual.

Read the Installer Manual.

Serial number

The serial number can be found at the bottom right of the front cover.



Caution

You need the product's (14 digit) serial number for servicing and support.

Recovery

Leave the disposal of the packaging to the installer who installed the product or to special waste stations.

Do not dispose of used products with normal household waste. It must be disposed of at a special waste station or dealer who provides this type of service.

Improper disposal of the product by the user results in administrative penalties in accordance with current legislation.

Inspection of the installation

Current regulations require the heating installation to be inspected before it is commissioned. The inspection must be carried out by a suitably qualified person.

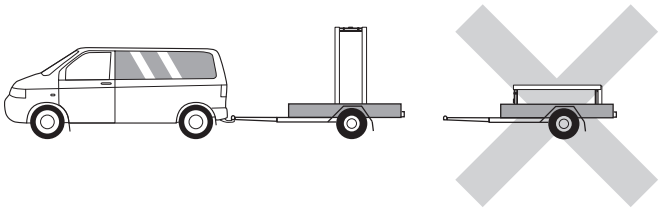
✔	Description	Notes	Signature	Date
Ventilation, exhaust air (page 16)				
	Setting the ventilation flow			
	Exhaust air filter			
Ventilation, surrounding air or outdoor air (page 17)				
	Pressure drop in the system			
Hot water				
	System vented			
Electricity (page 20)				
	Supply connected 230 V			
	Circuit fuses			
	Earth circuit-breaker			
Miscellaneous				
	Type of installation			

Delivery and handling

Transport

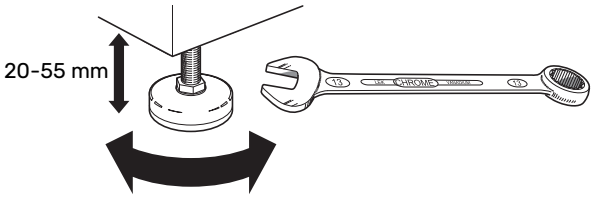
F110 should be transported and stored vertically in a dry place.

However, the F110 can be carefully laid on its back when being moved into the building. The centre of gravity is in the top section.



Assembly

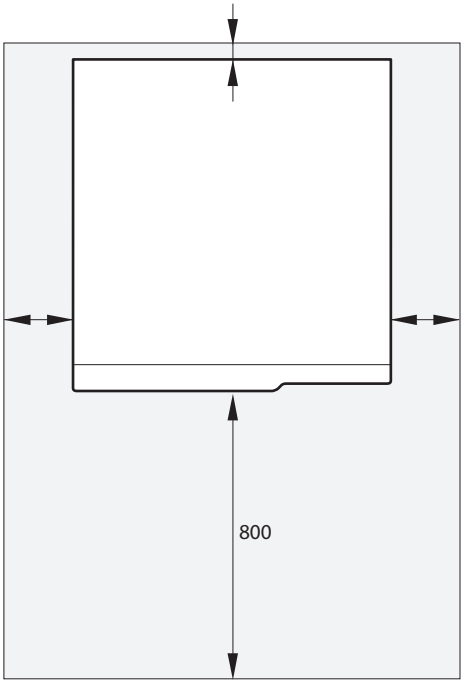
- Position F110 on a solid foundation indoors that withstands water and the weight of the product.
- Use the product's adjustable feet to attain a horizontal and stable set-up.



- Since water comes from F110, the area where F110 is located must be equipped with floor drainage.
- Because water comes from F110, the floor coating is important. A waterproof floor or floor membrane is recommended.
- Install with its back to an outside wall, ideally in a room where noise does not matter, in order to eliminate noise problems. If this is not possible, avoid placing it against a wall behind a bedroom or other room where noise may be a problem.
- Wherever the unit is located, walls to sound sensitive rooms should be fitted with sound insulation.
- Route pipes so they are not fixed to an internal wall that backs on to a bedroom or living room.
- The installation area always has to have a temperature of at least 10 °C and max. 30 °C.

INSTALLATION AREA

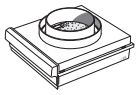
Leave a free space of 800 mm in front of the product. Leave free space between F110 and wall/other machinery/fittings/cables/pipes etc. It is recommended that a space of at least 10 mm is left to reduce the risk of noise and of any vibrations being propagated.



> **NOTE**
>
> Ensure that there is sufficient space (300 mm) above F110 for connecting ventilation ducts.

Supplied components

Silencer



Filter cartridge

Air connection

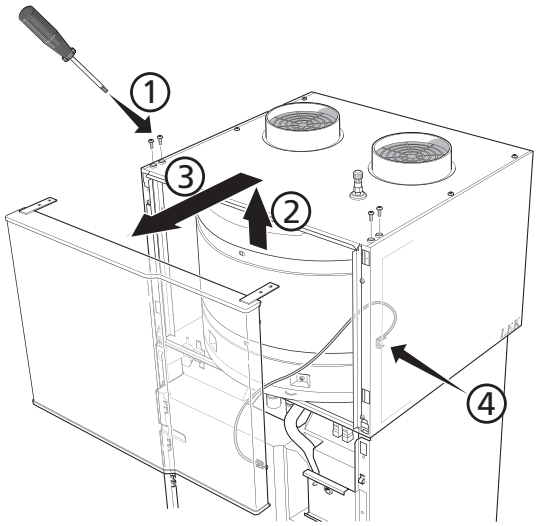
LOCATION

The kit of supplied items is placed in the lower section of the product.

Handling panels

REMOVE THE AIR TREATMENT UNIT'S HATCH

1. Loosen the screws for the securing plates above F110.
2. Slide the hatch upwards.
3. Pull the hatch towards yourself.

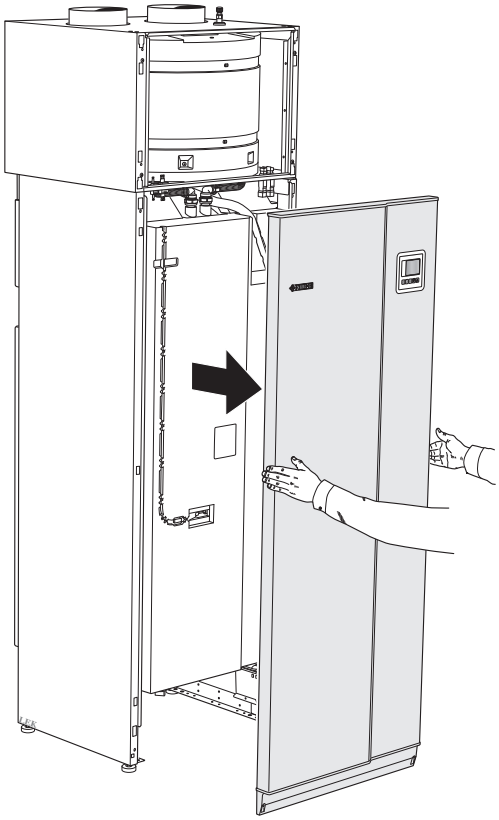


> **NOTE**
>
> An earth cable is installed in the hatch, which can therefore only be lifted out 35 cm. If the hatch needs to be removed completely, the cable must be disconnected.

REMOVE THE FRONT

1. Pull the panel towards yourself.

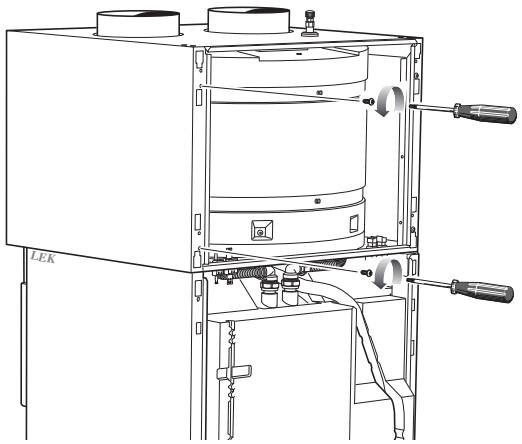
> **NOTE**
>
> A display cable is installed in the panel, it can therefore only be lifted out 1.5 m. If the panel needs to be removed completely, the cable must be detached.



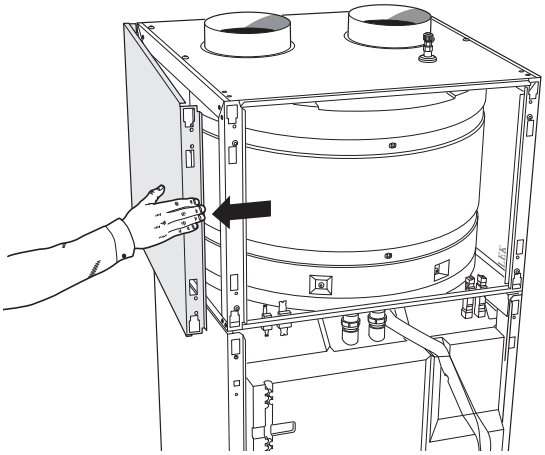
REMOVE SIDE PANELS

Air treatment section

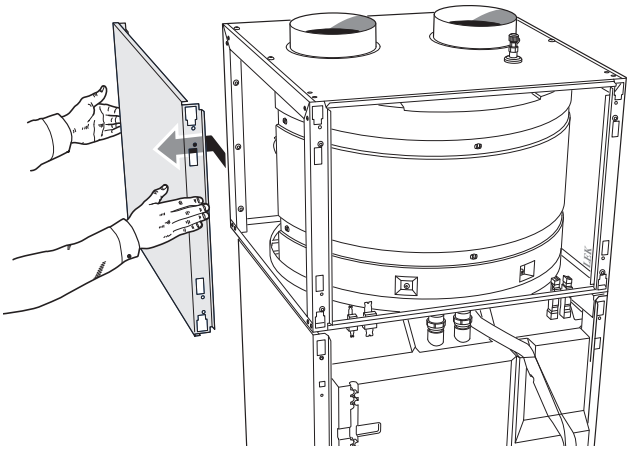
1. Undo the screws at the edge.



2. Twist the panel slightly outwards.



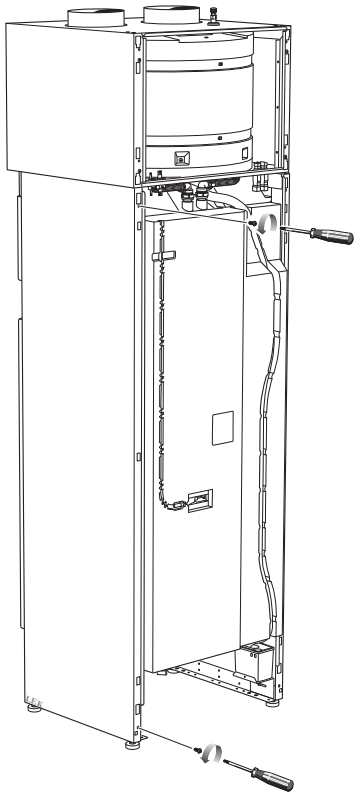
3. Move the panel outwards and backwards.



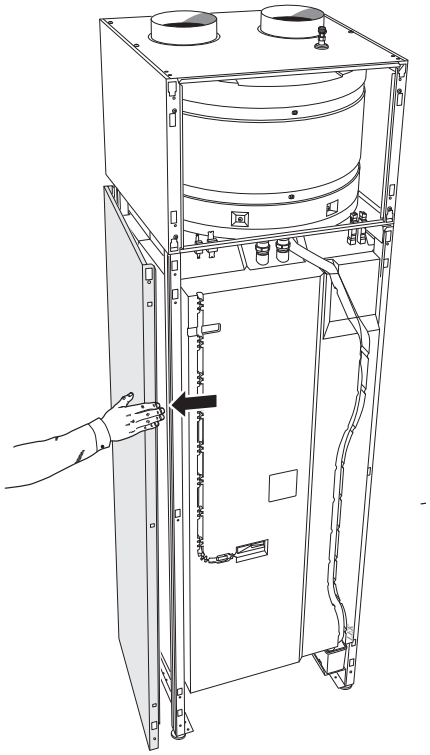
4. Assembly takes place in the reverse order.

Water heater section

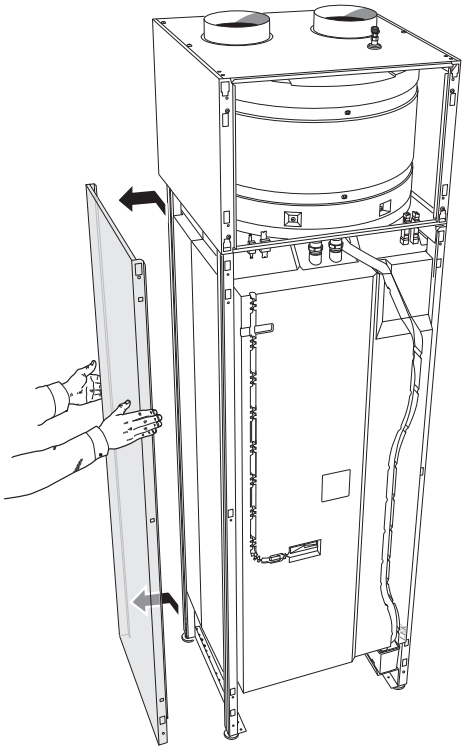
1. Remove the screws from the upper and lower edges.



2. Twist the panel slightly outwards.

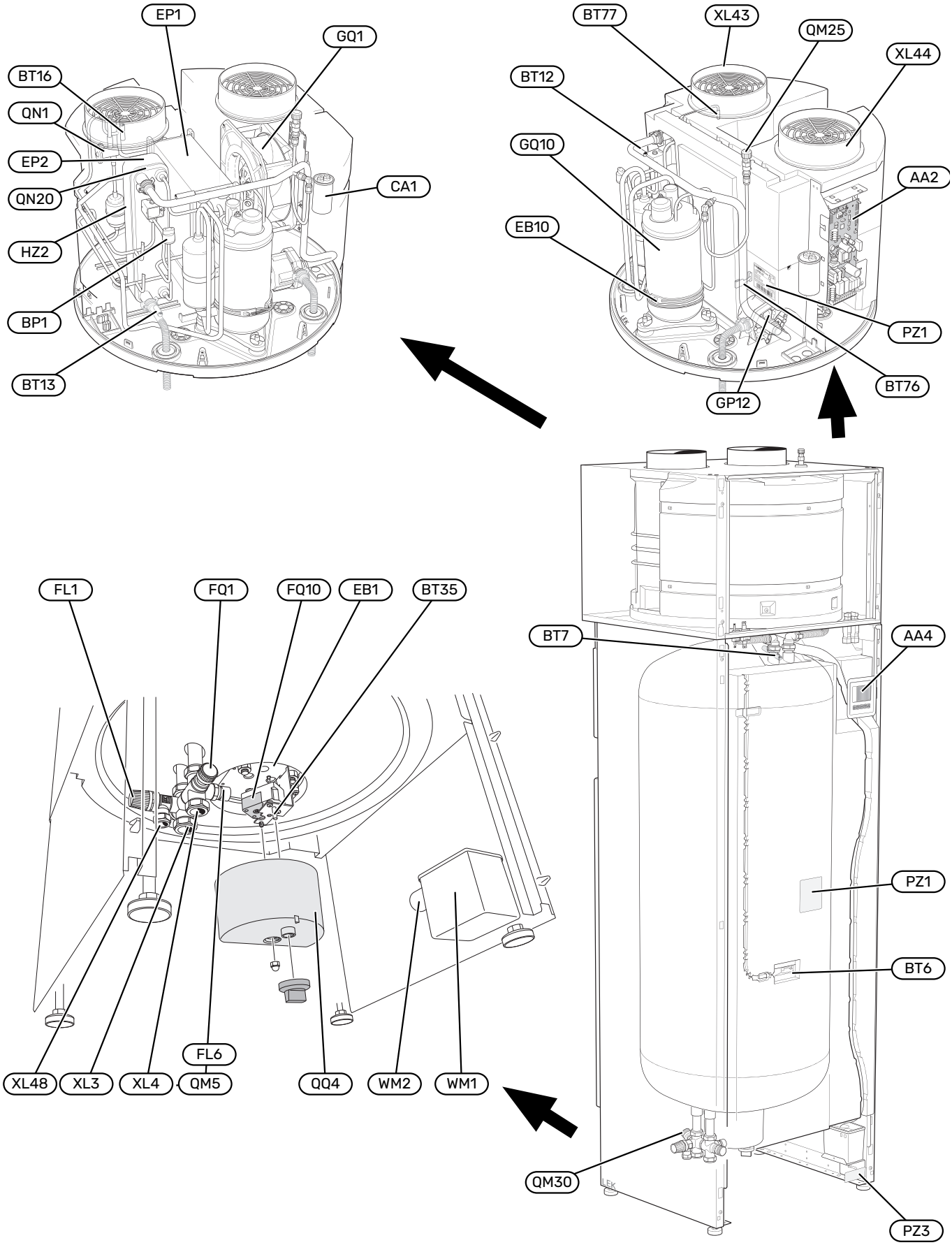


3. Move the panel outwards and backwards.



4. Assembly takes place in the reverse order.

The Heat pump design



List of components

PIPE CONNECTIONS

XL3	Cold water connection
XL4	Hot water connection
XL43	Connecting incoming air
XL44	Connecting outgoing air
XL48	Connection, safety valve

HVAC COMPONENTS

FL1	Safety valve, water heater
FL6	Vacuum valve (only F110 copper)
FQ1	Mixer valve, hot water
GP12	Charge pump
QM5	Venting screw (only F110 stainless steel)
QM25	Vent valve, hot water
QM30	Shut-off valve, hot water
QQ4	Connection area
WM1	Overflow cup
WM2	Overflow water discharge

SENSORS

BP1	High pressure pressostat
BT6	Temperature sensor, hot water, control
BT7	Temperature sensor, hot water, display
BT12	Temperature sensor, condenser out
BT13	Temperature sensor, heating medium return before condenser
BT16	Temperature sensor, evaporator
BT35	Thermostat
BT76	Temperature sensor, defrosting
BT77	Temperature sensor, incoming air

ELECTRICAL COMPONENTS

AA2	Base card
AA4	Display unit
CA1	Capacitor
EB1	Immersion heater
EB10	Compressor heater
FQ10	Temperature limiter

COOLING COMPONENTS

EP1	Evaporator
EP2	Condenser
GQ10	Compressor
HZ2	Drying filter
QN1	Expansion valve
QN20	Solenoid valve, defrosting

VENTILATION

GQ1	Fan
HQ12	Air filter[1]

MISCELLANEOUS

PZ1	Rating plate
PZ3	Serial number plate

Designations according to standard EN 81346-2.

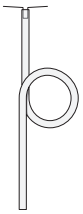
1 Not visible in the image.

Pipe and air connections

General pipe connections

Pipe installation must be carried out in accordance with current norms and directives.

F110 is only designed for be installed vertically. The water heater is equipped with compression ring couplings for copper or plastic pipes. Internal support bushes must be fitted when a plastic pipe or annealed copper pipe is used. The mixer valve is set for the desired hot water temperature. Turn the mixer knob anti-clockwise to increase hot water temperature. Setting range 40–65 °C.



Caution

Ensure that incoming water is clean. When using a private well, it may be necessary to supplement with an extra water filter.

NOTE

Water may drip from the safety valve's overflow pipe. The overflow pipe must be routed to a suitable drain, to prevent hot water splashes from causing harm. The overflow pipe must be inclined along its entire length to prevent pockets where water can accumulate, and must be frost-proof. The overflow pipe must be at least the same size as the safety valve. The overflow pipe must be visible and its mouth must be open and not placed close to electrical components.

SYMBOL KEY

Symbol	Meaning
	Circulation pump
	Immersion heater
	Expansion valve
	Fan
	Compressor
	Shut off valve
	Safety valve
	Heat exchanger
	Domestic hot water
	Heat pump

SYSTEM DIAGRAM

F110 consists of a heat pump, water heater, immersion heater and control system.

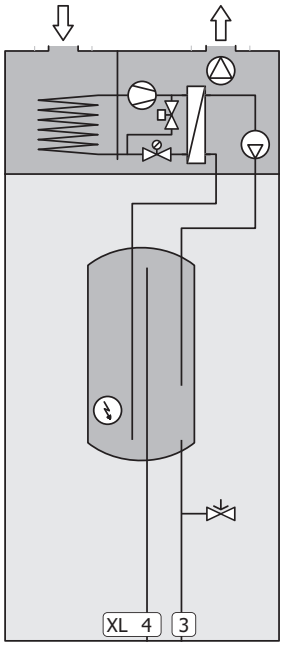
When the air passes through the evaporator, the refrigerant evaporates because of its low boiling point. In this way the energy in the air is transferred to the refrigerant.

The refrigerant is then compressed in a compressor, causing the temperature to rise considerably.

The warm refrigerant is led to the condenser. Here, the refrigerant gives off its energy to the hot water, whereupon the refrigerant changes state from gas to liquid.

The refrigerant then goes via filters to the expansion valve, where the pressure and temperature are reduced.

The refrigerant has now completed its circulation and returns to the evaporator.

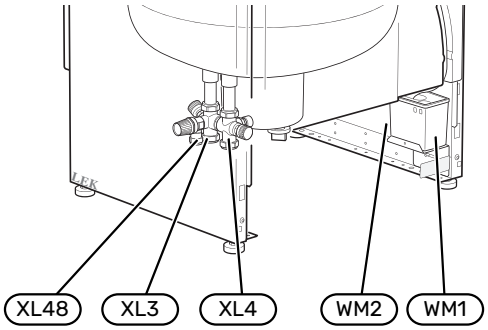


XL3	Cold water connection
XL4	Hot water connection

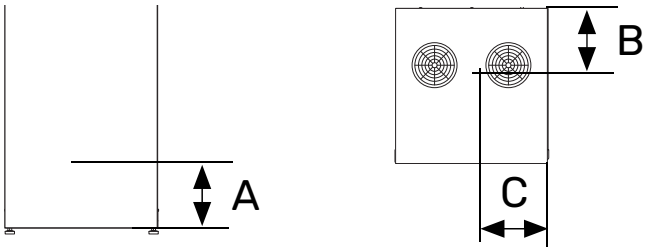
Caution

This is a principle of operation. For more detailed information about F110, see section "The Heat pump design".

Dimensions and pipe connections



SETTING OUT DIMENSIONS



Connection		A	B	C
XL3 Cold water	(mm)	125	295	435
XL4 Hot water	(mm)	125	350	435
XL48 Safety valve	(mm)	123	295	470
WM1 Overflow cup	(mm)	140	450	68

PIPE DIMENSIONS

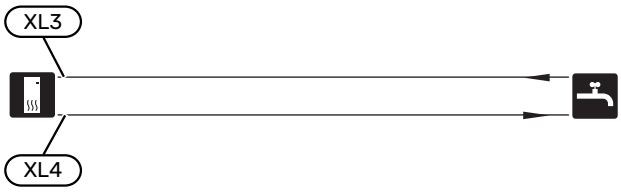
Connection		
XL3 Cold water ext Ø	(mm)	22
XL4 Hot water ext Ø	(mm)	22
XL48 Safety valve ext. Ø	(mm)	15
WM2 Overflow water discharge	(mm)	32

Cold and hot water

The settings for hot water are made in menu 5.1.1.

CONNECTING COLD AND HOT WATER

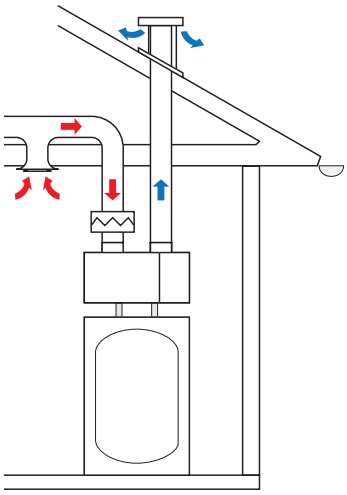
Install as follows:



Installation alternative

F110 must be connected according to the instructions in this manual.

EXHAUST AIR



Connecting the exhaust air

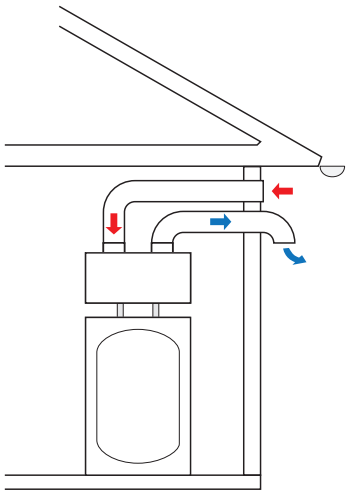
With an exhaust air connection the heat in the building's ventilation air is used to heat the hot water while the house is ventilated.

The hot air is transferred from the rooms to the heat pump via the house ventilation system.

> **NOTE**
>
> Install the enclosed air filter (HQ12) on the exhaust air duct. The filter must be cleaned regularly.

> **Caution**
>
> Noise from the fan can be transferred via the ventilation ducts.

OUTDOOR AIR



Connecting the outdoor air

With outdoor air connection the heat in the outdoor air is used to heat up the hot water.

- The pressure drop in the system must not exceed 60 Pa. Factors affecting the pressure drop include the dimensions of the air ducts, the number of bends and the length of the ducts. Example: In a system with 160 mm air ducts and 7 bends, the ducts may be a maximum of 8 m in length.
- Attempt to find a location for F110 on the side of the house that faces the least sound sensitive neighbouring area.

> **Caution**
>
> Noise from the fan can be transferred via the air ducts.

SURROUNDING AIR

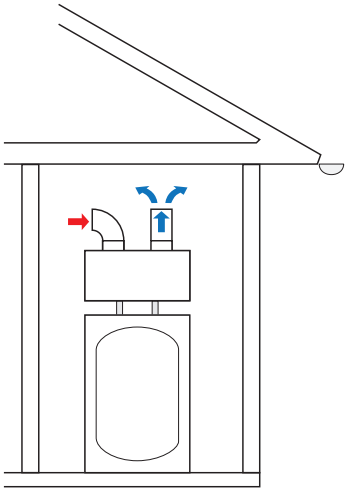
Connecting surrounding air

When connected to the surrounding air, the heat surplus that exists in the room is used to heat up the hot water. The outgoing air can be used to cool a room.

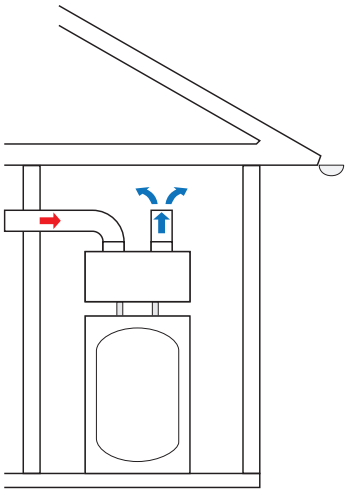
In installations where air is taken from one room and released into another, there can be over pressure if the room is not ventilated correctly. This can lead to damp in the building.

> **Caution**
>
> Outgoing air from F110 is cold and can therefore cool the room when it is released.

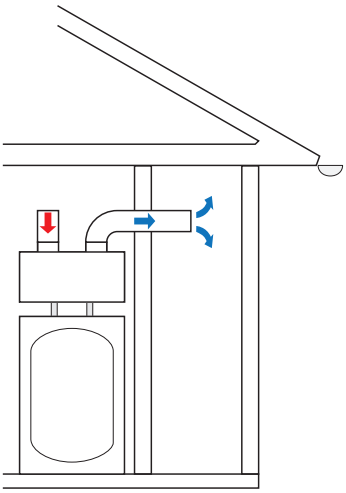
Take incoming air from one room and discharge outgoing air in the same room



Take incoming air in another room and let it out in the installation area



Take incoming air in the installation area and discharge outgoing air in another room



General ventilation connections

- Ventilation installation must be carried out in accordance with current norms and directives.
- Connections must be made via flexible hoses, which should be installed so that they are easy to replace.
- Provision must be made for inspection and cleaning of the duct.
- Make sure that there are no reductions of cross-sectional area in the form of creases, tight bends, etc., since this will reduce the ventilation capacity.
- The air duct system must be a minimum of air tightness class B.
- To prevent fan noise being transferred to the ventilation devices, install silencers in suitable locations in the duct system.
- For installation with ambient air, the enclosed silencer has to be fitted in F110.
- Ducts that may become cold must be insulated with diffusion-proof material (at least PE30 or equivalent) along their entire length.
- Ensure that the condensation insulation is fully sealed at any joints and/or at lead-in nipples, silencers, roof cowls or similar.
- A duct in a masonry chimney stack must not be used for extract air or outdoor air.
- For installation with outdoor air, the air must be routed to the outdoor air duct through an outer wall grille in the facade. The outer wall grille must be installed so that it is protected from the weather and must be designed so that no rainwater and/or snow can penetrate the facade or follow the air into the duct.
- When positioning the outdoor air and extract air hood/grille for outdoor air installation, bear in mind that the two air flows must not short circuit, thus preventing the extract air from being drawn into F110 again.
- When positioning the exhaust air and extract air ducts for installation with ambient air, bear in mind that the two air flows must not short circuit, thus preventing the extract air from being drawn into F110 again.
- The heat pump must be provided with the enclosed filter cartridge (HQ12).

EXHAUST AIR DUCT /KITCHEN FAN

Exhaust air duct (kitchen fan) must not be connected to F110.

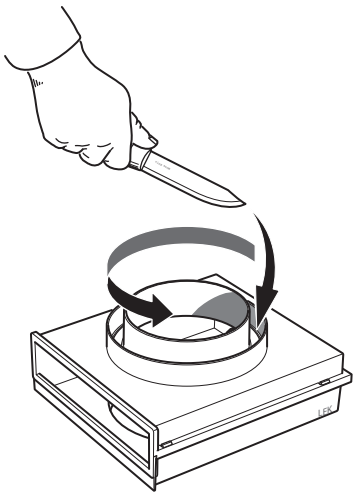
To prevent cooking odours from being led to the F110, the distance between the kitchen fan and the exhaust air valve must be taken into consideration. The distance must not be less than 1.5 m, but may vary between different installations.

Always use a kitchen fan when cooking.

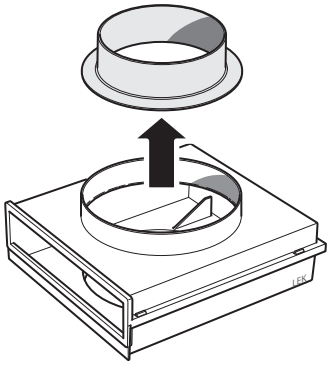
INSTALL THE FILTER CARTRIDGE

The filter cartridge has two sizes of connector, 125 mm or 160 mm.

1. Check the diameter of the air channel for inlet air.
2. When the air duct has a large diameter (Ø 160 mm), the inner ring must be cut out of the upper section of the filter cartridge.
3. Cut just inside the inner edge of the outer ring using a sharp knife. The plastic is prepared for easy cutting.



4. Remove the inner ring.



5. Press the filter cartridge into place in the connection for incoming air (XL43).

INSTALL THE CONNECTOR

If a filter solution other than that enclosed is used, the enclosed coupling must instead be mounted in the connection for incoming air (XL43).

INSTALL THE SILENCER

1. Remove the plugs from the silencer enclosed.
2. Install the silencer in the connection for the outgoing air (XL44).

Ventilation flows (exhaust air)

Connect F110 so that all the exhaust air, except kitchen duct air (kitchen fan), passes through the evaporator (EP1) in the heat pump.

The ventilation flow must comply with the applicable national standards.

For optimum heat pump performance, the ventilation flow must not be less than 20 l/s (73 m³/h) at normal exhaust air temperature. At lower exhaust air temperatures, a higher flow is required.

Set the ventilation capacity in the heat pump's menu system (menu 5.1.5 - "fan sp. exhaust air").

If the exhaust air temperature falls below 10 °C or the outdoor air temperature falls below -10 °C, the compressor is blocked and electric additional heat is permitted. Energy is not recovered from the exhaust air/outdoor air, when the compressor is blocked.

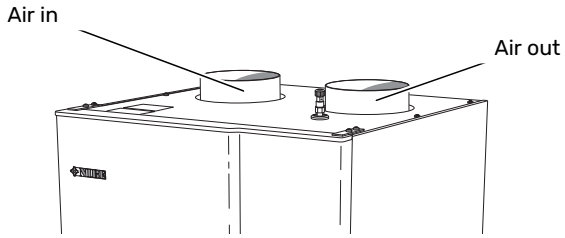
Adjusting ventilation (exhaust air)

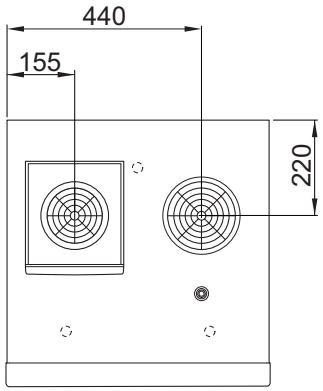
To obtain the necessary air exchange in every room of the house, the exhaust air devices must be correctly positioned and adjusted and the fan in the heat pump adjusted.

Immediately after installation adjust the ventilation so that it is set according to the projected value of the house.

Incorrect adjustment of the ventilation may lead to reduced installation efficiency and thus poorer operating economy, a poorer indoor climate and moisture damage in the building.

Dimensions and ventilation connections





Electrical connections

General

- Electrical installation and wiring must be carried out in accordance with national provisions.
- Disconnect F110 before insulation testing the house wiring.
- If the building is equipped with an earth-fault breaker, F110 should be equipped with a separate one.
- F110 must be installed via an isolator switch. The cable area has to be dimensioned based on the fuse rating used.
- If a miniature circuit breaker is used, this must have at least triggering characteristic "C". See section "Technical specifications" for fuse size.
- For an electrical wiring diagram for F110, see the "Technical specifications" section.

> **NOTE**
>
> Electrical installation and any servicing must be carried out under the supervision of a qualified electrician. Disconnect the current using the circuit breaker before carrying out any servicing.

> **NOTE**
>
> If the supply cable is damaged, only NIBE, its service representative or similar authorised person may replace it to prevent any danger and damage.

> **NOTE**
>
> Check the connections, main voltage and phase voltage before the product is started, to prevent damage to the heat pump electronics.

> **NOTE**
>
> Do not start the system before filling up with water. Components in the system could be damaged.

TEMPERATURE LIMITER (FQ10)

The temperature limiter (FQ10) cuts the current supply to the electric additional heat if the temperature rises between 90 and 100°C and can be manually reset.

Resetting

The temperature limiter (FQ10) is accessible behind the front cover. Reset the temperature limiter by carefully pressing the button (FQ10-SF2) using a small screwdriver.

Connections

SUPPLY

F110 is connected to a earthed single-phase wall socket or a permanent installation. For permanent installations, F110 must be preceded by a circuit breaker with at least a 3 mm breaking gap.

Optional connections

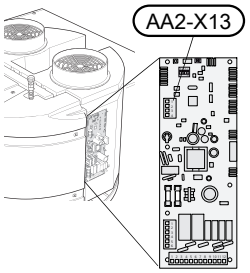
EXTERNAL CONNECTION OPTIONS

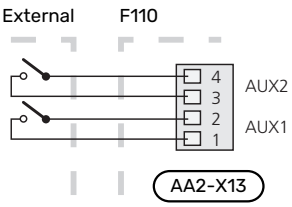
F110 has software-controlled AUX inputs for connecting external switch function (contact has to be potential free).

Selectable inputs

Selectable inputs on the base board (AA2) for these functions are:

AUX1	Blocking additional heat	AA2-X13:1-2
AUX2	Blocking the compressor	AA2-X13:3-4





In the above example, inputs AUX1 (X13:1-2) and AUX2 (X13:3-4) on the input board (AA2) are both used.

Possible selection for AUX inputs

External blocking of functions

An external switch function can be connected to F110 for blocking various functions. The switch must be potential-free and a closed switch results in blocking.

> **NOTE**
>
> Blocking can entail a risk of freezing.

Functions that can be blocked:

- internally controlled additional heat
- compressor

Commissioning and adjusting

Preparations

1. Check that the display is off.
2. Check that the filling valves are fully closed.

> **Caution**
>
> Check the temperature limiter (FQ10) in the heat pump. It may have tripped during transport.

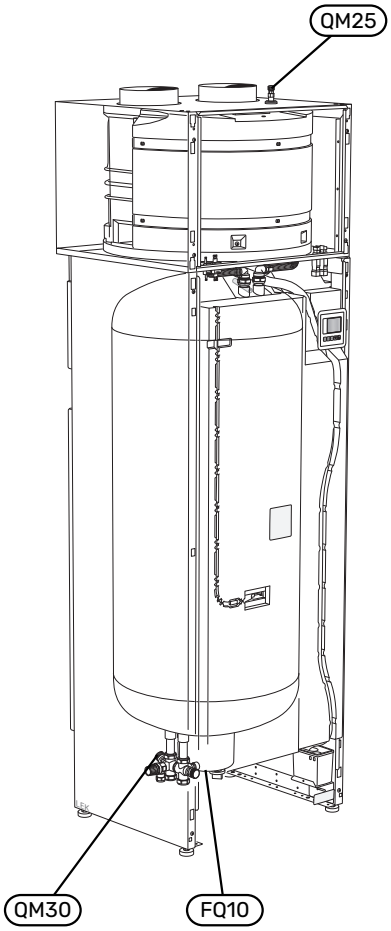
Filling and venting

FILLING THE HOT WATER HEATER

1. Open a hot water tap in the house.
2. Open the filling valve (QM30). Afterwards, this valve must be fully open during operation.
3. When the water that comes out of the hot water tap is no longer mixed with air, the water heater is full and the tap can be closed.

VENTING

Vent the heat pump with the vent valve (QM25) until there is no air in the water that comes out of the valve. Repeat venting after operating for a while.



Start-up and inspection

START GUIDE

> **NOTE**
>
> There must be water in the water heater before the heat pump is started. Check that the thermostat (BT35) is on max.

1. Start F110 by connecting the supply cable.
2. Follow the instructions in the display's start guide. If the start guide does not start when you start the F110, you can start it manually in menu 5.7.

> **TIP**
>
> See page 23 for a more in-depth introduction to the heat pump's control system (operation, menus etc.).

Commissioning

The first time the installation is started a start guide is started. The start guide instructions state what needs to carried out at the first start together with a run through of the installation's basic settings.

The start guide ensures that the start-up is carried out correctly and, for this reason, cannot be skipped.

Operation in the start guide

Arrows to scroll through window in start guide

1. Press the up or down button until one of the arrows in the top left corner (at the page number) has been marked.
2. Press the OK or Back button to move backwards or forwards in the start guide.

See page 23 for a more in-depth introduction to the heat pump's control system.

SETTING THE VENTILATION (EXHAUST AIR)

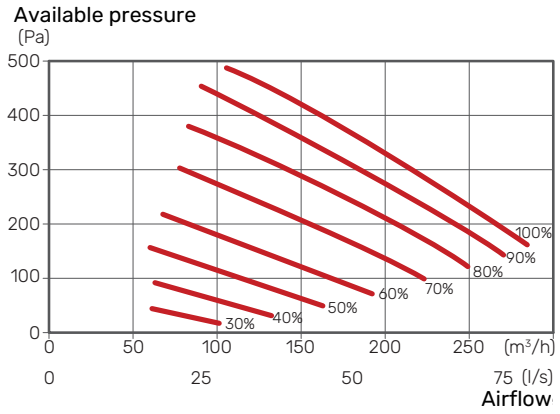
The ventilation must be set according to applicable standards. The fan speed is set in menu 5.1.5 - "fan speed".

The ventilation must be set according to applicable standards. The fan speed is set in menu 7.1.4.1 - "Fan speed, exhaust air".

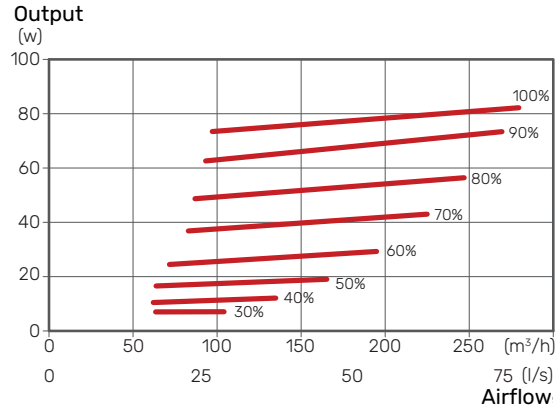
Even if ventilation is roughly set at installation it is important that a ventilation adjustment is ordered and permitted.

> **NOTE**
>
> Order a ventilation adjustment to complete the setting.

Fan capacity



Fan rating



COMMISSIONING WITHOUT FAN

Commissioning without fan

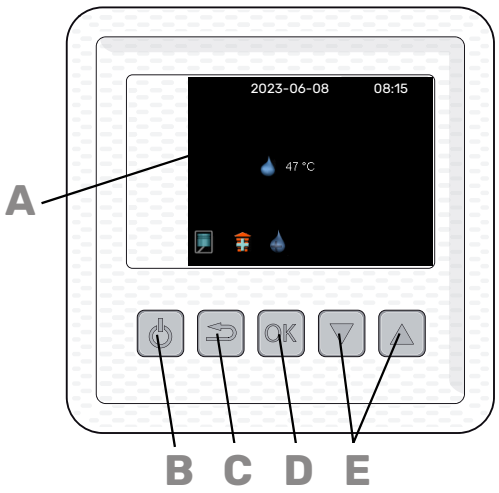
The heat pump can be run without recovery, i.e. as an electric water heater, to produce hot water, for example before the ventilation installation is complete.

1. Enter menu 4.2 - "op. mode" and select "add. heat only"
2. Enter menu 5.1.5 - "fan sp. exhaust air" and reduce the fan speed to 0%.

> **NOTE**
>
> Select operating mode "auto" or "manual" when the heat pump is to run on recovery again.

Control - Introduction

Display unit



A **DISPLAY**
Instructions, settings and operational information are shown on the display.

B **STAND-BY BUTTON**
F110 can be switched to stand-by mode using the standby button. The compressor, immersion heater and fan are then switched off. Press the button for three seconds to activate/deactivate standby mode.

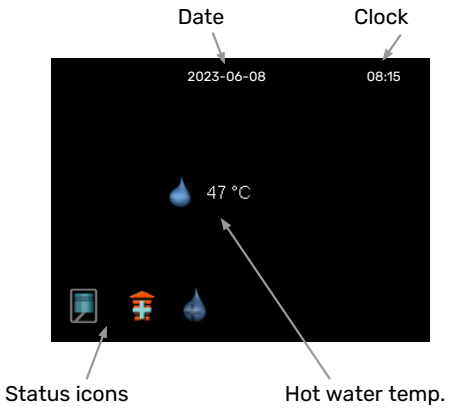
C **BACK BUTTON**
The back button is used to:
- go back to the previous menu.
- change a setting that has not been confirmed.

D **OK BUTTON**
The OK button is used to:
- confirm selections of sub menus/options/set values.

E **UP AND DOWN BUTTONS**
With the up and down buttons you can:
- scroll in menus and between options.
- increase and decrease the values.

Menu system

When F110 is started you come to the information menu. Basic information about the heat pump status is shown here.

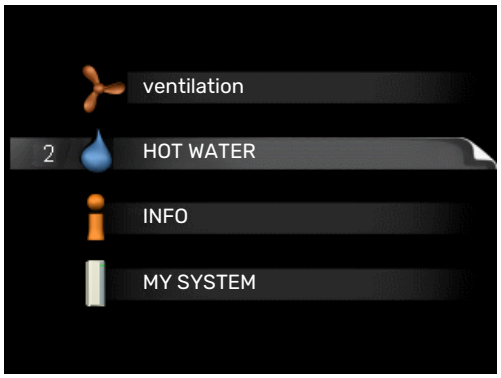


The information menu shows:

- on starting.
- when the back button in the main menu is pressed.
- after 15 minutes of inactivity.

Press any button to go to the main menu.

MAIN MENU



The menu system's main menus are shown here.

MENU 1 - VENTILATION

Setting the ventilation. See page 25.

MENU 2 - HOT WATER

Setting and scheduling hot water production. See page 26.

MENU 3 - INFO

Display of temperatures and other operating information and access to the alarm log. See page 28.

MENU 4 - MY SYSTEM

Setting time, date, language, operating mode etc. See page 29.

MENU 5 - SERVICE

Advanced settings. These settings are not available to the end user. Go to the main menu and hold the Back button pressed in for 7 seconds to access the Service menu. See page 30.

SYMBOLS IN THE DISPLAY

The following symbols may appear on the display during operation.

Symbol	Description
	This symbol is displayed when the compressor is operating.
	This symbol is displayed when the additional heat is operating.
	This symbol appears when the speed of the fan is changed from its normal setting.
	This symbol appears when lux mode for hot water is activated or when periodic increase is active.
	This symbol appears when "scheduling" is activated in menu 2.3.
	This symbol appears when "holiday setting" is activated in menu 4.7.

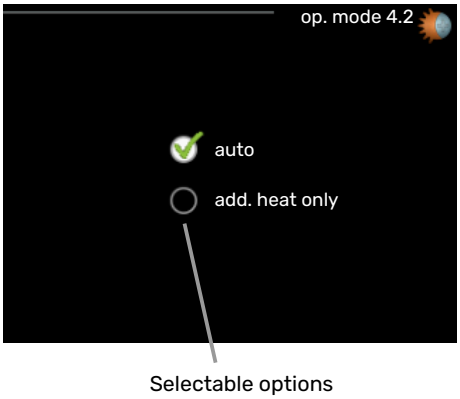
OPERATION

To move the cursor, press the up or down button. The marked position is brighter and/or has a turned up tab.

SELECTING MENU

To advance in the menu system select a sub-menu by marking it by using the up and down buttons and then pressing the OK button.

SELECTING OPTIONS



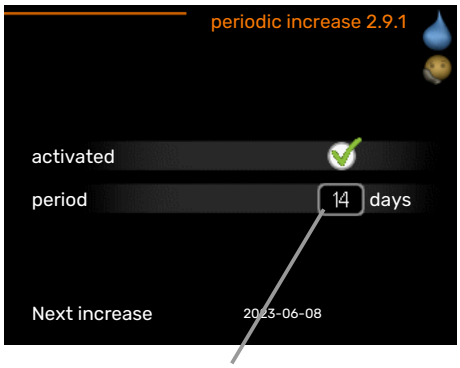
Selectable options

In an options menu the current selected option is indicated by a green tick. 

To select another option:

1. Mark the applicable option using the up or down button. One of the options is pre-selected (white). 
2. Press the OK button to confirm the selected option. The selected option has a green tick. 

SETTING A VALUE



Adjustable value

To set a value:

1. Mark the value you want to set using the up or down button. 
2. Press the OK button. The background of the value becomes green, which means that you have accessed the setting mode. 
3. Press the up button to increase the value or the down button to reduce the value. 
4. Press the OK button to confirm the value you have set. To undo and return to the original value, press the back button. 

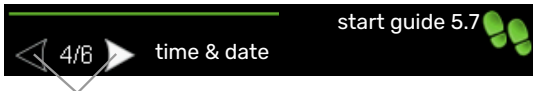
SCROLL THROUGH THE WINDOWS

A menu can consist of several windows. Mark the page number, using the up and down keys, in the upper left corner and then press the OK button to switch between the windows.

Current menu window

Number of windows in the menu

Scroll through the windows in the start guide



Arrows to scroll through windows in the start guide

1. Mark, using the up and down keys, one of the arrows in the top left corner (at the page number).
2. Press the OK button to scroll between the windows in the start guide.

Control - Menus

Menu 1 - ventilation

OVERVIEW

1 - ventilation

MENU 1 - VENTILATION

Setting range: normal and speed 1-4

Default value: normal

This menu is only shown with exhaust air installation.

The ventilation in the accommodation can be temporarily increased or reduced here.

When a new speed has been selected, a countdown is initiated. After 4 hours, the ventilation speed returns to the normal setting.

The fan speed is shown in brackets (in percent) after each speed alternative.

TIP

If longer time changes are required use the holiday function.

Caution

The heat pump requires a minimum ventilation flow in order to work properly. An insufficient ventilation flow can result in an alarm and blocking of compressor operation.

Menu 2 - HOT WATER

OVERVIEW

2 - HOT WATER	2.1 - temporary lux	
	2.2 - comfort mode	
	2.3 - scheduling	
	2.9 - advanced	2.9.1 - periodic increase

* Accessory needed.

Sub-menus

For the menu HOT WATER there are several sub-menus. Status information for the relevant menu can be found on the display to the right of the menus.

temporary lux Activation of temporary increase in the hot water temperature. Status information displays “off" or what length of time of the temporary temperature increase remains.

comfort mode Setting hot water comfort. The status information displays what mode is selected, "economy", "normal" or "luxury".

scheduling Scheduling hot water comfort. Status information "active" displays if the scheduling is active right now, the status information "set" displays if the scheduling is set but not active.

advanced Setting periodic increase in the hot water temperature.

MENU 2.1 - TEMPORARY LUX

Setting range: 3, 6 and 12 hours and mode "off" and "one time increase"

Default value: "off"

When hot water requirement has temporarily increased this menu can be used to select an increase in the hot water temperature to lux mode for a selectable time.

Caution

If comfort mode "luxury" is selected in menu 2.2 no further increase can be carried out.

The function is activated immediately when a time period is selected and confirmed using the OK button. The remaining time for the selected setting is shown to the right.

When the time has run out F110 returns to the mode set in menu 2.2.

Select “off" to switch off temporary lux.

MENU 2.2 - COMFORT MODE

Setting range: economy, normal, luxury

Default value: normal

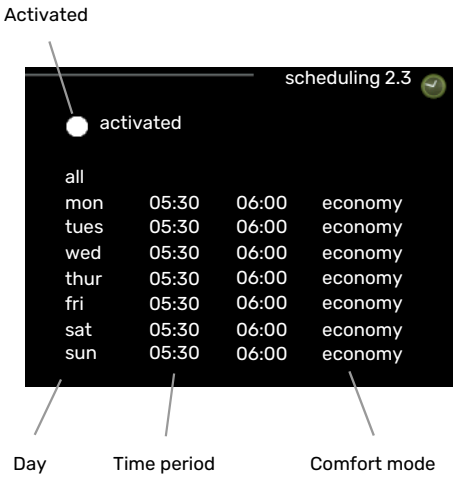
The difference between the selectable modes is the temperature of the hot tap water. Higher temperature means that the hot water lasts longer.

economy: This mode produces less hot water than the others, but is more economical.

normal: Normal mode gives a larger amount of hot water and is suitable for most households.

luxury: Lux mode gives the greatest possible amount of hot water. In this mode, the immersion heater is used to heat hot water as well as the compressor, which increases operating costs.

MENU 2.3 - SCHEDULING



What hot water comfort the heat pump is to work with can be scheduled here.

Scheduling is activated/deactivated by ticking/unticking"activated". Set times are not affected at deactivation.

Activated: Scheduling for the selected period is activated here. Set times are not affected at deactivation.

Day: Select which day or days of the week the scheduling is to apply to here. To remove the scheduling for a particular day, the time for that day must be reset by setting the start time to the same as the stop time. If the row "all" is used, all days in the period are set according to that row.

Time period: The start and stop time for the selected day for scheduling are selected here.

Comfort mode: Set the hot water comfort that is to apply during scheduling here.

TIP

If you wish to set similar scheduling for every day of the week start by filling in “all” and then changing the desired days.

Caution

If the stop time is earlier in the day than the start time it means that the period extends past midnight.

Scheduling always starts on the date that the start time is set for.

If time periods overlap each other at midnight, the time period that starts after midnight is prioritised.

MENU 2.9 - ADVANCED

Menu advanced has orange text and is intended for the advanced user. This menu has a sub-menu.

MENU 2.9.1 - PERIODIC INCREASE

period
Setting range: 1 - 90 days

Factory setting: activated, 14 days

To prevent bacterial growth in the water heater, the compressor and the immersion heater can increase the hot water temperature for a short time at regular intervals.

The length of time between increases can be selected here. The time can be set between 1 and 90 days. Factory setting is 14 days. Tick/untick "activated" to start/switch off the function.

Menu 3 - INFO

OVERVIEW

3 - INFO	3.1 - service info
	3.2 - compressor info
	3.3 - add. heat info
	3.4 - alarm log

Sub-menus

For the menu INFO there are several sub-menus. No settings can be made in these menus, they just display information.

service info shows temperature levels and software versions in the heat pump.

compressor info shows operating times, number of starts and status for the compressor.

add. heat info shows information about additional heat operating times and status.

alarm log displays the latest alarm and information about the heat pump when the alarm occurred.

MENU 3.1 - SERVICE INFO

Information about the actual operating status of the installation (e.g. current temperatures etc.) can be obtained here. No changes can be made.
The information is on several pages. Push the up and down buttons to scroll between the pages.

Symbols in this menu:			
	Compressor		Addition
	Ventilation (only shown with exhaust air installation)		Periodic increase or lux mode for hot water
	Scheduling		Holiday setting

MENU 3.2 - COMPRESSOR INFO

Information about the compressor's operating status and statistics can be obtained here. No changes can be made.

MENU 3.3 - ADD. HEAT INFO

Information about the additional heat's operating status and statistics can be obtained here. No changes can be made.

MENU 3.4 - ALARM LOG

To facilitate fault-finding the heat pump operating status at alarm alerts is stored here. You can see information for the 10 most recent alarms.

To view the run status in the event of an alarm, mark the alarm and press the OK button.

Menu 4 - MY SYSTEM

OVERVIEW

4 - MY SYSTEM	4.2 - op. mode	
	4.4 - time & date	
	4.6 - language	
	4.7 - holiday setting	
	4.8 - alarm	
	4.9 - advanced	4.9.4 - factory setting

Sub-menus

For the menu MY SYSTEM there are several sub-menus. Status information for the relevant menu can be found on the display to the right of the menus.

op. mode Activation of manual or automatic operating mode. The status information shows the selected operating mode.

time & date Setting current time and date. Status information displays the time.

language Select the language for the display here. The status information shows the selected language.

holiday setting Vacation scheduling hot water and ventilation. Status information "set" is displayed if you set a vacation schedule but it is not active at the moment, "active" is displayed if any part of the vacation schedule is active, otherwise it displays " off".

alarm Alarms can be reset here.

advanced Resetting all settings to factory default values.

MENU 4.2 - OP. MODE

op. mode
Setting range: auto, add. heat only

Default value: auto

The heat pump operating mode is usually set to "auto". It is also possible to set the heat pump to "add. heat only", but only when additional heat is used.

Change the operating mode by marking the desired mode and pressing the OK button.

Operating mode auto

In this operating mode the heat pump automatically selects what functions are permitted.

Operating mode add. heat only

In this operating mode the compressor is not active, only additional heat is used.

> **Caution**
>
> If you choose mode "add. heat only" the compressor is deselected and there is a higher operating cost.

MENU 4.4 - TIME & DATE

Set time and date and display mode here.

MENU 4.6 - LANGUAGE

Choose the language that you want the information to be displayed in here.

MENU 4.7 - HOLIDAY SETTING

To reduce energy consumption you can schedule a reduction in hot water temperature and any ventilation.

The vacation scheduling starts at 00:00 on the start date and stops at 23:59 on the stop date.

> **TIP**
>
> Finish the holiday setting about a day before your return, so the hot water temperature has time to regain usual levels.

MENU 4.8 - ALARM

This menu is only available if an alarm has occurred.

Here you can reset any alarms that have occurred in F110.

MENU 4.9 - ADVANCED

Menu advanced has orange text and is intended for the advanced user. This menu has a sub-menu.

MENU 4.9.4 - FACTORY SETTING

All settings that are available to the user (including advanced menus) can be reset to default values here.

After factory settings, user settings must be reset.

Menu 5 - SERVICE

OVERVIEW

5 - SERVICE	5.1 - operating settings	5.1.1 - hot water settings
		5.1.5 - fan sp. exhaust air
		5.1.5 - fan speed
		5.1.15 - air in-temperatures
		5.1.16 - installation
	5.5 - factory setting	
	5.6 - forced control	
	5.7 - start guide	
	5.8 - quick start	

Go to the main menu and hold the Back button in for 7 seconds to access the Service menu.

Sub-menus

The menu SERVICE has orange text and is intended for the advanced user. This menu has several sub-menus.

operating settings Operating settings for the heat pump.

factory setting Total reset of all settings (including settings available to the user) to default values.

forced control Forced control of the different components in the heat pump.

start guide Manual start of the start guide which is run the first time the heat pump is started.

quick start Quick starting the compressor.

> NOTE
>
> Incorrect settings in the service menus can damage the heat pump.

MENU 5.1 - OPERATING SETTINGS

Make settings for the heat pump here.

MENU 5.1.1 - HOT WATER SETTINGS

economy

Setting range economy start temp: 10 – 53 °C

Factory setting economy start temp: 45 °C

Setting range economy stop temperature: 13 – 56 °C

Factory setting economy stop temperature: 51 °C

normal

Setting range normal start temp: 10 - 53 °C

Factory setting normal start temp: 49 °C

Setting range normal stop temperature: 13 - 56 °C

Factory setting normal stop temperature: 54 °C

luxury

Setting range luxury start temp: 10 – 77 °C

Factory setting luxury start temp: 53 °C

Setting range luxury stop temperature: 13 – 80 °C

Factory setting luxury stop temperature: 58 °C

stop per increase

Setting range: 5 – 80 °C

Default value: 60 °C

Here you set the start and stop temperature of the hot water for the different comfort options in menu 2.2 as well as the stop temperature for periodic increase in menu 2.9.1.

MENU 5.1.5 - FAN SPEED

Exhaust air installation
Setting range: 30 – 100 %

Factory setting normal: 70 %

Factory setting speed 1: 30 %

Factory setting speed 2: 50 %

Factory setting speed 3: 70 %

Factory setting speed 4: 90 %

Outdoor air installation
Setting range: 30 – 100 %

Factory setting speed 1: 70 %

Factory setting speed 2: 50 %

Installation ambient air
Setting range: 30 – 100 %

Factory setting speed 1: 30 %

Set the speed of the fan here.

At outdoor air installations the fan runs at speed 1 at outdoor temperatures below 10 °C, then speed 2 takes over.

Caution

An incorrectly set ventilation flow can damage the house and may also increase energy consumption.

MENU 5.1.15 - AIR IN-TEMPERATURES

max air in.temp.
Setting range: 20 - 37 °C

Default value: 37 °C

min air in.temp.
Setting range: -10 - 25 °C

Factory setting outdoor air: -10 °C

Factory setting surrounding air and exhaust air: 10 °C

Set the min and max temperature of the incoming air to F110 here.

MENU 5.1.16 - INSTALLATION

installation
Setting range: outdoor air, ambient air, exhaust air

Factory setting: outdoor air

Set how F110 is installed here.

This menu is not reset by a return to factory settings in menu 4.9.4 or 5.5.

MENU 5.5 - FACTORY SETTING

All settings can be reset (including settings available to the user) to default values here.

NOTE

When resetting, the start guide is displayed the next time the heat pump is restarted.

MENU 5.6 - FORCED CONTROL

You can force control the different components in the heat pump here.

MENU 5.7 - START GUIDE

When the heat pump is started for the first time the start guide starts automatically. Start it manually here.

See page 21 for more information about the start guide.

MENU 5.8 - QUICK START

It is possible to start the compressor from here.

Caution

There must be a hot water demand to start the compressor.

NOTE

Do not quick start the compressor too many times over a short period of time, as this could damage the compressor and its surrounding equipment.

Service

> **NOTE**
> Servicing and maintenance should only be carried out by persons with the necessary expertise.
>
> When replacing components on F110 only replacement parts from NIBE may be used.

Service actions

EMPTYING

1. Cut the current to the heat pump by pulling out the supply cable.
2. Close the shut-off valve (QM30) (turn clockwise).
3. Open the mixing valve (FQ1) fully (turn anticlockwise).
4. Open the safety valve (FL1) (turn slowly anticlockwise so that it remains in the raised position).

   > **NOTE**
   > There may be some hot water, risk of scalding.

5. Open a hot water tap to let air into the system. If this is not sufficient, loosen a pipe coupling marked HW on the mixer valve.

For faster draining of F110 copper: Loosen the vacuum valve (FL6) a few turns. A small amount of water may run out at the valve.

For faster draining of F110 stainless steel: Loosen the venting screw (QM5) a few turns. A small amount of water may run out at the screw.

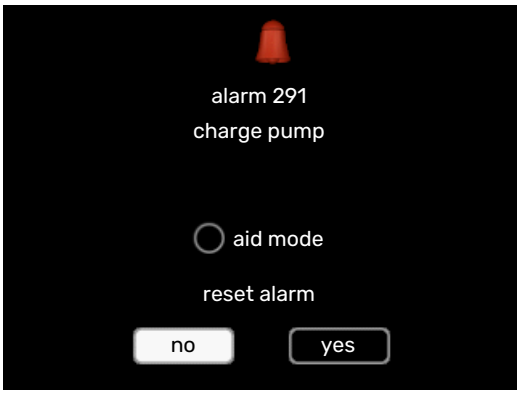
Disturbances in comfort

In most cases, F110 notes a malfunction (a malfunction can lead to disruption in comfort) and indicates this with alarms, and instructions for action, in the display.

Info menu

All the heat pump measurement values are gathered under menu 3.1 in the heat pump menu system. Looking through the values in this menu can often simplify finding the source of the fault. See help menu or user manual for more information about menu 3.1.

Manage alarm



In the event of an alarm, a malfunction has occurred, which is indicated by an alarm symbol in the display.

ALARM

In the event of an alarm a malfunction has occurred that F110 cannot rectify itself. The display shows what type of alarm it is and lets you reset the alarm. You can also choose to set the heat pump to rescue mode

reset alarm In many cases it is sufficient to select "reset alarm" to correct the problem that caused the alarm. If the alarm recurs, the problem that caused the alarm remains. If the alarm disappears and then recurs, see the troubleshooting section (page 33).

aid mode "aid mode" is a type of emergency mode. This means that the heat pump produces hot water despite there being some kind of problem.
This can mean that the heat pump's compressor is not running. In this case the immersion heater produces hot water.

> **Caution**
>
> Selecting "aid mode" is not the same as correcting the problem that caused the alarm. The alarm symbol will remain displayed.

Troubleshooting

If the operational interference is not shown in the display the following tips can be used:

BASIC ACTIONS

Start by checking the following items:

- That the feed cable is connected to F110.
- Group and main fuses of the accommodation.
- The property's earth circuit breaker.
- Heat pump's earth-fault breaker.
- Temperature limiter for F110 (FQ10).

LOW HOT WATER TEMPERATURE OR A LACK OF HOT WATER

- Large hot water consumption.
  - Wait until the hot water has heated up. Temporarily increased hot water capacity (temporary lux) can be activated in menu 2.1.
- Too low hot water setting.
  - Enter menu 2.2 and select a higher comfort mode.
- Filter clogged (installation with ambient air)
  - Clean or replace the filter.
- Thermostat setting too low (BT35)
  - Turn the thermostat to max.
- Low or a lack of ventilation (exhaust air installation)
  - See section "Low or a lack of ventilation".
- Applies to incoming air blocked (outdoor air installation)
  - Clean the grille.

LOW OR NO VENTILATION (EXHAUST AIR INSTALLATION)

- Filter (HQ12) blocked.
  - Clean or replace the filter.
- The ventilation is not adjusted.
  - Order/implement ventilation adjustment.
- Exhaust air device blocked or throttled down too much.
  - Check and clean the exhaust air devices.
- Fan speed in reduced mode.
  - Enter menu 1 and select "normal".

HIGH OR DISTURBING VENTILATION (EXHAUST AIR INSTALLATION)

- Filter (HQ12) blocked.
  - Clean or replace the filter.
- The ventilation is not adjusted.
  - Order/implement ventilation adjustment.
- Fan speed in forced mode.
  - Enter menu 1 and select "normal".

THE COMPRESSOR DOES NOT START

- There is no hot water requirement.
  - The heat pump does not call on hot water.
  - The heat pump defrosts.
- The heat pump defrosts.
  - The compressor starts, when defrosting is complete.

Accessories

Detailed information about the accessories and complete accessories list available at nibe.eu.

Separable valve connector

For external installation, relocation or separation.

F110 COPPER
Part no. 624 922

F110
Part no. 624 923

Base extension EF 45

This accessory can be used to create a larger area under F110.

Part no. 067 152
RSK no. 622 41 07

Top cabinet TOC 40

Top cabinet, which conceals any pipes/ventilation ducts.

HEIGHT 245 MM
Part no. 089 756
RSK no. 625 06 87

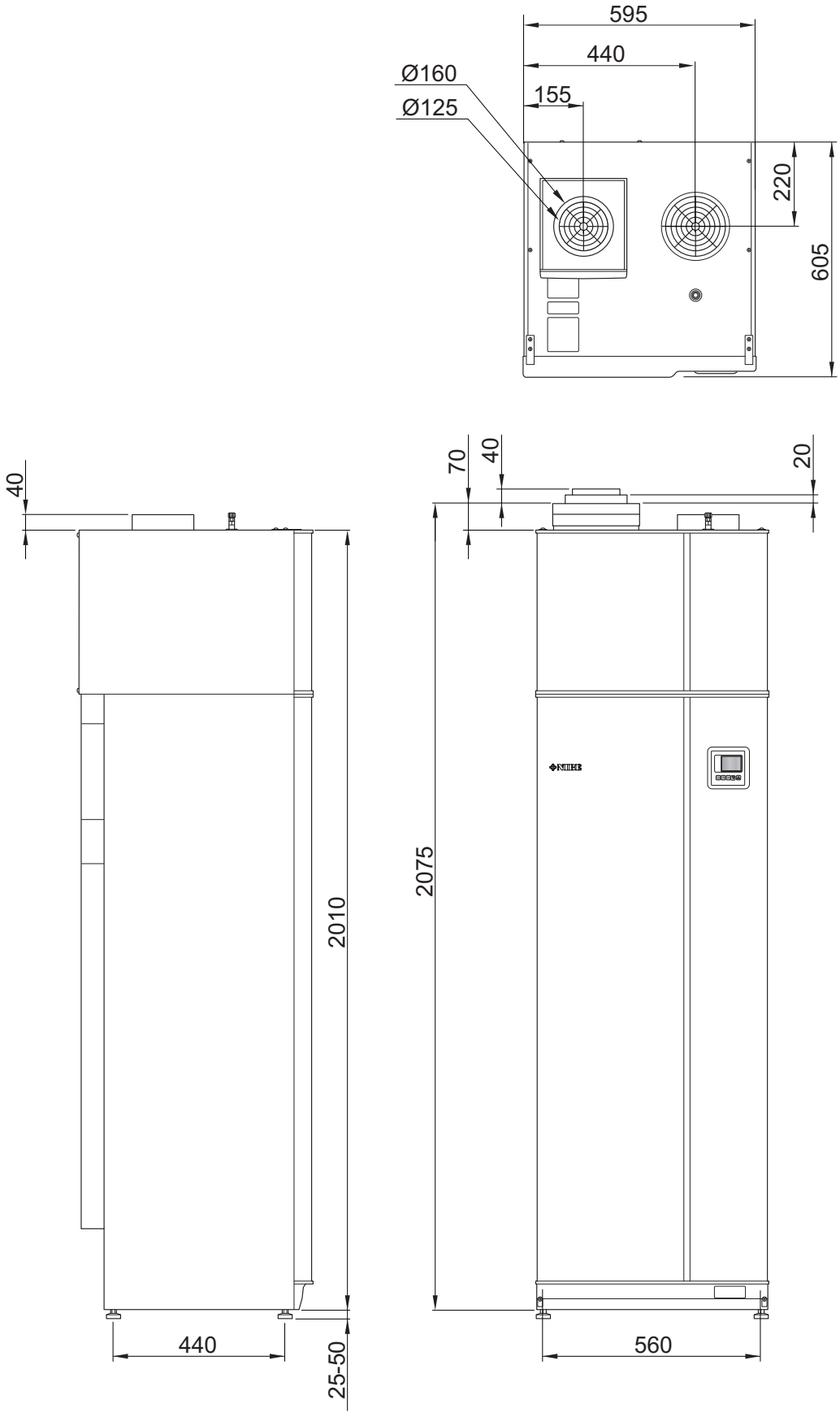
HEIGHT 345 MM
Part no. 089 757
RSK no. 625 06 88

HEIGHT 445 MM
Part no. 067 522
RSK no. 625 12 99

HEIGHT 385 - 635 MM
Part no. 089 758
RSK no. 625 06 89

Technical data

Dimensions



Technical specifications

1x230 V		Exhaust air	Outdoor air	Surrounding air
Output data according to EN 16 147				
Capacity (P_H)/COP	kW/-	1.32 / 2.89[1]	1.08 / 2.36[2]	1.32 / 3.27[3]
Additional power				
Output immersion heater	kW		1.3	
Electrical data				
Rated voltage	V		230 V ~ 50 Hz	
Max operating current	A		9.1	
Min. fuse rating	A		10	
Driving power circulation pump	W		5-20	
Driving power fan	W		20-75	
Enclosure class			IPX1B	
Ventilation				
Filter type, exhaust air filter			Coarse 65%	
Refrigerant circuit				
Type of refrigerant			R134A	
GWP refrigerant			1430	
Volume	kg		0.38	
CO_2 equivalent	ton		0.54	
Cut-out value pressostat HP	MPa/bar		2.2 / 22.0	
Air flow requirement				
Min. airflow with the temperature of the incoming air below 10 °C	l/s	-	83	-
Min. airflow with the temperature of the incoming air at least 10 °C	l/s	25	42	25
Temperature range for compressor operation	°C	10 - 37	-10 - 37	10 - 37
Sound effect level according to EN 12 102				
Sound power level ($L_{W(A)}$)[4]	dB(A)		47.0	
Sound pressure levels according to EN ISO 11 203				
Sound pressure level in the installation room ($L_{P(A)}$)[5]	dB(A)		43.0	
Pipe connections				
Hot water ext ⌀	mm		22	
Cold water ext ⌀	mm		22	
Safety valve ext. ⌀	mm		15	
Ventilation ext ⌀	mm		160	
Filter box ext. ⌀	mm		160/125	

1 A20(12), luftflöde 50 l/s (180 m³/h)

2 A7(6), luftflöde 70 l/s (250 m³/h)

3 A20(12), luftflöde 50 l/s (180 m³/h)

4 The value varies with the fan speed selected. For more detailed sound data, including sound to ducts, visit nibe.eu.

5 The value can vary with the room's damping capacity. These values apply at a damping of 4 dB.

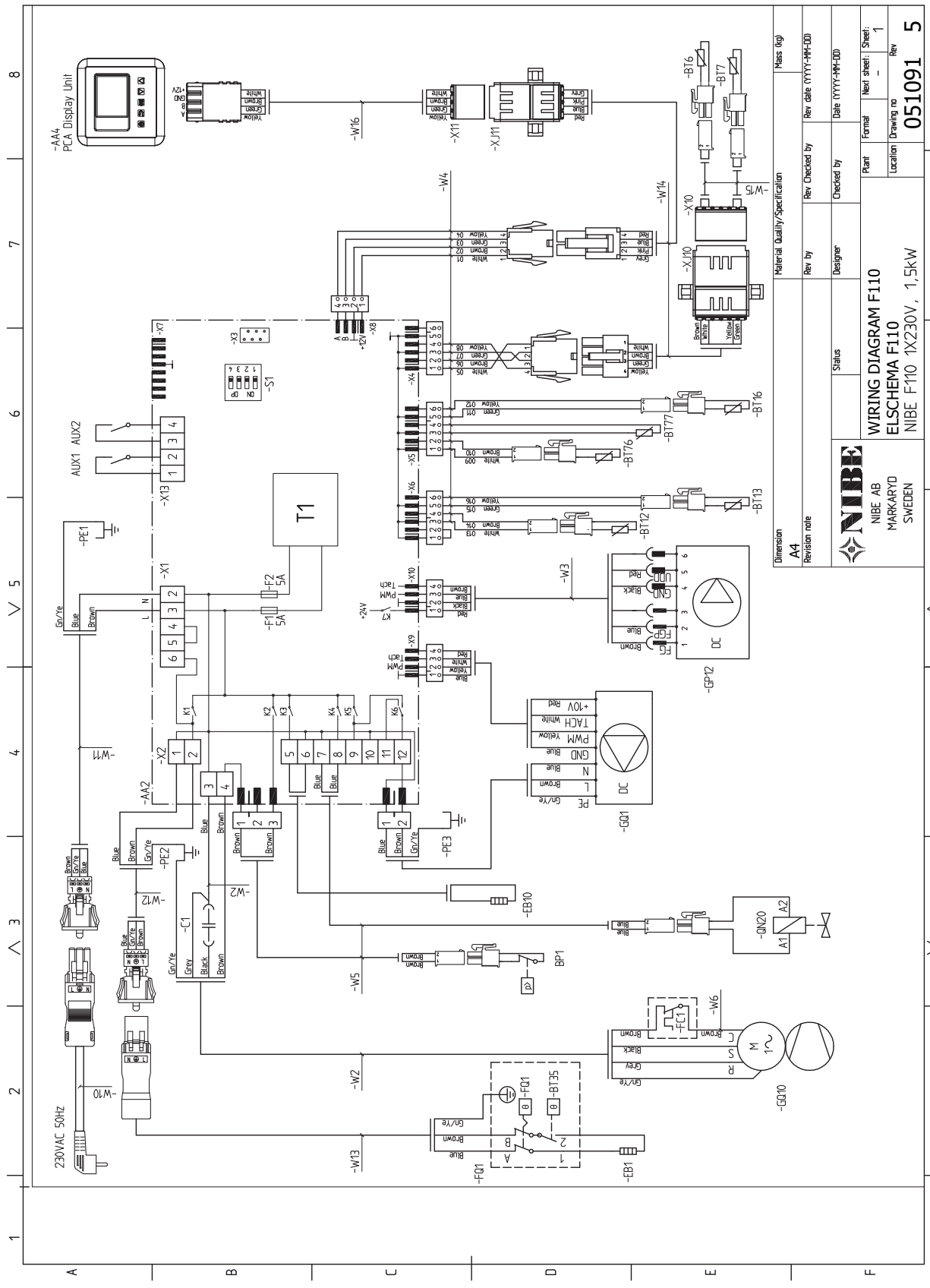
Other 1x230 V		Copper	Stainless
Water heater			
Volume, hot water heater	litre	265	
Min pressure in water heater	MPa/bar	0.2 / 2.0	
Max pressure in hot water heater	MPa/bar	1.0 / 10.0	
Opening pressure, safety valve	MPa/bar	0.9 / 9.0	1.0 / 10.0
Max temperature with compressor	°C	56	
Max temperature with additional heat	°C	95	
Capacity of hot water heating according to EN 16 147 [1]			
Tap volume 40 °C at Normal comfort (V_{max})	litre	365	
Idle loss at Normal comfort (P_{es})	W	42	
Dimensions and weight			
Length, supply cable	m	2.8	
Width	mm	600	
Depth	mm	605	
Height		2,030 - 2,060	
Required ceiling height	mm	2,110	
Weight	kg	144	127
RSK No.		625 12 53	-
Part No.		066 083	066 025

1 A20(12), air flow 50 l/s (180 m^3/h). Comfort mode, normal.

Energy labelling

Supplier		NIBE AB		
Model		**F110 Exhaust air**	**F110 Outdoor air**	**F110 Surrounding air**
Declared load profile		**XL**	**XL**	**XL**
Water heating energy efficiency class, average climate		**A**	**A**	**A**
Water heating energy efficiency, average climate, η_{wh}	%	116	95	131
Annual energy consumption water heating, average climate, AEC	kWh	1,452	1,778	1,283
Thermostat setting	°C	54	54	54
Sound power level L_{WA} indoors	dB	47	47	47
Water heating energy efficiency, cold climate, η_{wh}	%	116	82	131
Water heating energy efficiency, warm climate, η_{wh}	%	116	106	131
Annual energy consumption water heating, cold climate, AEC	kWh	1,452	2,037	1,283
Annual energy consumption water heating, warm climate, AEC	kWh	1,452	1,589	1,283
Daily electrical consumption, Q_{elec}	kWh	6.60	8.08	5.83
Applied standards		EN 16147		

ELECTRICAL CIRCUIT DIAGRAM



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